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AUTHOR	Daehn, Ralph M.
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ABSTRACT

Prepared at the request of the Advisory Systems Committee of the Ontario Universities' Library Cooperative System, this report presents the results of study of the feasibility of a bilingual regional system for maps, or alternatively, the possibility of adapting the Guelph system to CARTESS. The report is presented in three sections: (1) a description of CARTESS (a system which allows the production of printed indexes of cartographic documents grouped in alphabetical order by names of areas and subjects, by scale, and by date) and the Guelph system; (2) analysis of both systems with emphasis on the formats utilized in each, and a comparison of both formats to Canadian MARC and LC MARC (Maps); and (3) recommendations concerning the development of a regional system for maps. Recommendations include: one regional system should be created for Quebec map collections and another regional system for Ontario map collections; the regional system should include shared cataloging among participating libraries; a format should be developed for use by both regional systems; a classification for area and subject should be chosen and should appear for every record; and development stages should be handled by task forces, and include participants from both the Quebec and Ontario regional projects. (THC)

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A Regional System for Maps

REPORT

Respectfully submitted to the Advisory Systems Committee
of the
Ontario Universities' Library Cooperative System

by
Ralph M. Daehn

McLaughlin Library University of Guelph

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PREFACE

This report, written by Ralph M. Daehn, McLaughlin Library, The University of Guelph, will help the OULCS Map Project User Group determine what format to use in the project. It will hopefully also be of use to the National Library of Canada in making map format decisions.

The report is yet another example of excellent work done by members of the staff of the McLaughlin Library in specific and by members of the various OULCS projects in general.

The goal of the OULCS project participants is to develop cooperative systems for libraries. One of the significant benefits of the work has been the sharing of the expertise of a lot of people. I believe our strength is collective; when we all benefit from the ideas and abilities of each other as we have and do, I believe our libraries and systems cannot help but be stronger and better.

I hope the spirit of cooperation and the determination to succeed in the development of cooperative systems remains alive and healthy for many years to come.

Sincere congratulations to Mr Daehn for a fine and carefully done report. Grateful thanks to Margaret Beckman and her staff for yet another meaningful contribution to the work of the OULCS.

Ralph E. Stierwalt, Director
Office of Library Coordination

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FOREWORD

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This report was prepared at the request of the Advisory Systems Committee of the Ontario Universities' Library Cooperative System to study the feasibility of a bilingual regional system for maps, or, alternatively, the possibility of adapting the Guelph system to CARTESS.

The report is presented in three sections:

1. description of CARTESS and the Guelph system;
2. analysis of both systems with emphasis on the formats utilized in each, and a comparison of both formats to Canadian MARC and LC MARC (Maps);
3. recommendations concerning the development of a regional system for maps.

I express my sincere thanks to M. Yves Tessier, Directeur, La Cartothèque, Université Laval, for his much appreciated cooperation in providing me with all the required information on CARTESS.

Ralph M. Daehn
Guelph, Ontario

April 1974

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(a) area, area names
(b) subject, subject headings
(iv) reference tables
(v) listings and entry
(vi) processing
(vii) cost

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1. Compatibility of CARTESS and the Guelph system

(i) general
(ii) format
(iii) classification
(iv) reference tables
(v) listings, entry and access
(vi) processing
(vii) cost

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III. Recommendations

I

DESCRIPTION

System CARTESS

A system which, starting with the entry for all types of maps, allows the production of printed indexes of cartographic documents, grouped in alphabetical order by names of areas and subjects, by scale, and by date. The same data may as well be given in the form of catalogue cards, according to the cataloguing rules for cards. Programmes were written in PL/1 and are handled by an IBM-370-155 computer with the help of IBM 3330 disks.

"The present manual has as its goal to furnish a guide, satisfying, to the best possible degree, a golden rule in the entry of data for a documentation system: uniformity.

Because this rule is not applied at the level of intellectual production, and for good reasons, it is necessary to alleviate this extrinsic inconvenience in the documentation by determining the ways according to which the information must be submitted to the system.

In dealing with the documentation of maps, it is indispensible to manipulate numerous types of data of greatly varying nature. This characteristic aspect accentuates as much the difficulty in that manipulation."*

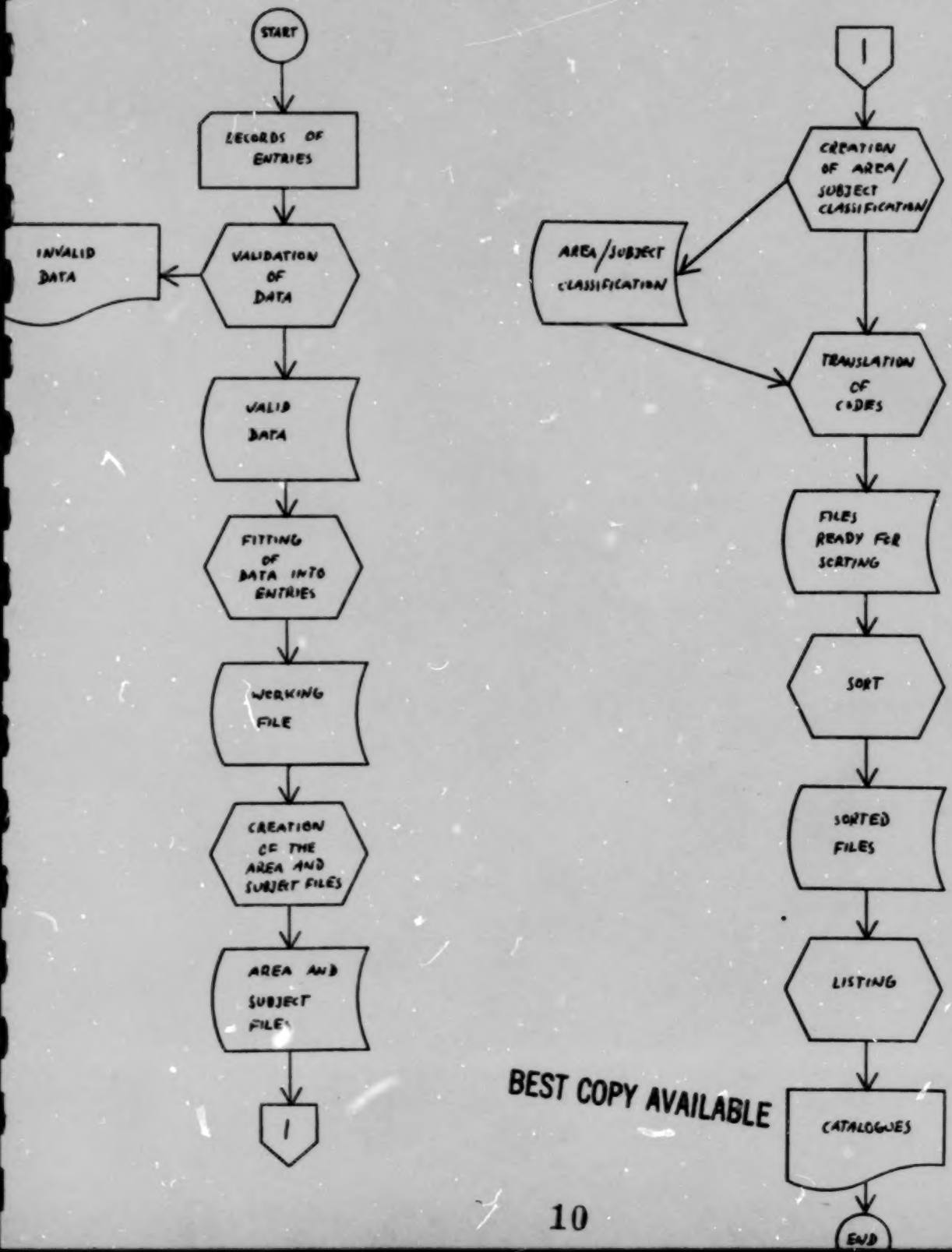
The system has been in operation since June 1972.

*Rough translation from: Tessier, Yves. Manuel de dépouillement pour le système CARTESS. Ste Foy, Qué., Bibliothèque de l'Université Laval. Cartothèque, 1971.

**More information may be found in: Tessier, Yves. "A New automated map cataloguing system" in Association of Canadian Map Libraries. Proceedings of the [Fifth] Annual Conference. Ottawa, Ont., 1972.

SYSTEM CARTESS

General Flowchart



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RECORD FORMAT FOR A MAP ENTRY

CARTESS

Tag	Columns	Field	Length
	1-13	Identification number	13
	(1-3)	(Alph. identifying code for instit. responsible for contents)	
	(4-7)	(Numeric identifying code for a collection)	
	(8-13)	(Numeric characters constit. a number, consecutive and increasing, for each entry within the same collection)	
	14	Blank	1
	15-16	Entry codes	2
01	17-46	Areas (5 areas may be assigned)	30 (6 each)
11	17-46	Subjects (5 subjects may be assigned)	30 (6 each)
21	17-48	*1st author	32
22	17-48	*2nd author	32
23	17-48	*3rd author	32
24	17-48	*4th author	32
31	17-80	*Title	64
32	17-80	*Title (continued)	64
41	17-21	Date of publication	5
	22-80	*Place of publication, Publisher	59
42	17-80	*Publisher (continued)	64
51	17-80	*Source	64
52	17-80	*Source (continued)	64
61	17-80	*Notes	64
62	17-80	*Notes (continued)	64
71	17-26	Scale	10
	27-31	Date of Information 1	5
	32-36	Date of Information 2	5
	37-40	Number of sheets	4
	41-42	Number of copies	2
	43-48	Dimensions (in cm.)	6
	49-78	Geographical coordinates 49-56 longitude 1 57-64 longitude 2 65-71 latitude 1 71-78 latitude 2	30
	79-80	Type of document	2
81	17-18	Reproduction of the document	2
	19	Polychrome	1
	20-28	Language	9
	29-35	Type of relief representation 29 contours 30 hypsometric tints 31 spot elevations 32 shading 33 hachures 34 figurative drawing 35 other	7

Tag	Columns	Field	Length
	36	Prime meridian	1
	37-38	No. of insets	2
	39-42	Projection	4
	43-48	Date of entry	6
	49-80	*Call number	32
91	17-31	*Edition	15
	32-80	*Series	49

*Length of these fields may be variable.

FORMAT OF AN ENTRY

CARTESS (903 char. positions) Fixed

1 13	14 43	44 73	74 83	84 93
IDENTIFICATION NO.	AREAS	SUBJECTS	SCALE	DATES OF INFO.
13	30	30	10	10

94 221	222 253	254 285	286 317	318 349
TITLE	AUTHOR 1	AUTHOR 2	AUTHOR 3	AUTHOR 4
128	32	32	32	32

350 364	365 369	370 492	493 496	497 498
EDITION	DATE OF PUBLICATION	PUBLISHER	NO. OF SHEETS	NO. OF COPIES
15	5	123	4	2

499 500	501	502 507	508 556	557 560
METHOD OF REPRODUCTION	COL.	DIMENSIONS	SERIES	PROJECTION
2	1	6	49	4

561 590	591 599	600 606	607	608 609
GEOGR. COORD's	LANGUAGES	RELIEF	MERIDIAN	INSETS
30	9	7	1	2

610 737	738 769	770 775	776 903	
SOURCE	CALL NO.	DATE OF ENTRY INTO FILE	NOTES	
128	32	6	128	

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Data elements are explained by definition, format, and utilization in: Tessier, Yves. Manuel de dépouillement pour le système CARTESS. Ste Foy, Qué., Bibliothèque de l'Université Laval. Cartothèque, 1971.

Classification

CARTESS --

The classification* consists of two parts:

(1) by area

(2) by subject, subdivided into three sections --

(i) physical
(ii) economic
(iii) human

It is a hierarchical classification proceeding from general to specific;

i.e., 373 500 Urban landscape
373 510 Land use
373 511 residential
373 512 commercial
373 513 industrial
etc.

Certain topics of the classification have as yet not been developed in all possible aspects. Care has been taken to reserve the necessary space for eventual development.

Up to 5 areas and up to 5 subjects may be assigned to a map.

*Université Laval. Centre de documentation de la bibliothèque. Classification Cartomatique pour l'indexation. 2nd ed. Québec, 1972; the same classification is used for CARTESS.

LOCALISATION

000 000	MONDE ET UNIVERS
010 000	ARCTIQUE
020 000	ANTARCTIQUE
050 000	OCEAN ATLANTIQUE
060 000	OCEAN PACIFIQUE
070 000	OCEAN INDIEN
100 000	EUROPE
200 000	AFRIQUE
300 000	ASIE
400 000	OCEANIE
500 000	AMERIQUE LATINE
600 000	AMERIQUE DU NORD

TABLEAU DE SUBDIVISION GENERALE DES OCEANS ET CONTINENTS

Nord	--0 010
Nord-Ouest	--0 014
Nord-Est	--0 017
Sud	--0 020
Sud-Ouest	--0 024
Sud-Est	--0 027
Centre	--0 030
Est	--0 040
Ouest	--0 050

100 000 MILIEU PHYSIQUE

SOMMAIRE:

110 000 COSMOGRAPHIE; CARTOGRAPHIE MATHEMATIQUE ET THEORIQUE; CARTES GENERALES; GEOPHYSIQUE

120 000 GEOLOGIE

130 000 GEOMORPHOLOGIE

140 000 HYDROGRAPHIE

150 000 CLIMATOLOGIE ET METEOROLOGIE

160 000 PEDOLOGIE

170 000 BIOGEOGRAPHIE

200 000 MILIEU ECONOMIQUE

SOMMAIRE:

201 000 COMMERCE

202 000 TOURISME

203 000 FINANCES ET ASSURANCES

204 000 TRANSPORTS ET COMMUNICATIONS

205 000 INDUSTRIE

206 000 AGRICULTURE

207 000 FORESTERIE, PECHE, CHASSE, CUEILLETTE

208 000 MINES ET ENERGIE

300 000 MILIEU HUMAIN

SOMMAIRE:

310 000 FAITS HISTORIQUES

320 000 FAITS SOCIO-CULTURELS

330 000 FAITS DEMOGRAPHIQUES

340 000 FAITS JURIDIQUES

350 000 FAITS ADMINISTRATIFS ET POLITIQUES

360 000 CAMPAGNES ET PHENOMENES RURAUX

370 000 VILLES ET PHENOMENES URBAINS

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Reference tables

Area -- "Classification régionale"* is input by numeric code: area name is printed out in full utilizing this table (for explanation, refer to 1.(iii) Classification)

Subject -- "Classification thématique"* is input by numeric code; subject headings are printed out in full utilizing this table (for explanation, refer to 1.(iii) Classification)

Journal acronyms -- utilized in the "source" field; acronyms are used instead of journal titles; not all journal titles have acronyms
-- 12 acronyms are presently in the "Liste des sigles de revues"**

Reproduction code -- 2 digit numerical code is input; form designation appears in full in the entry for a map

°Colour code -- 1 digit numerical is input to indicate colour

Language(s) -- language used in the title of the map or legend is input by 3 digit alphabetic code; in the entry, the mnemonic code is printed out from the "Liste des sigles pour les langues"**
-- presently 116 languages in the table

°Relief code -- 1 digit numerical code is input and the method of relief representation is printed out in full**

°Meridian code -- 1 digit numerical code is input if meridian is different from 0° long. at Greenwich; utilization is as yet to be determined (does not appear in the entry for a map as yet)

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Projection code -- 4 digit numeric code is input and full name of the projection will be printed out in the near future utilizing the table of projections ("Liste des codifications des projections cartographiques"**); the projection table encompasses 225 projections, including references to other names for the same projection, plus a list of equivalent English names for all projections; this table is as yet to be computerised

*Université Laval. Centre de documentation de la bibliothèque. Classification Cartomatique pour l'indexation. 2nd ed. Québec, 1972.

**found in the Manuel de dépouillement pour le système CARTESS; reference at 1.(ii) 4

°These codes are few in number for each type, consequently the codes are not consulted by the computer in the form of a table but are written into the appropriate programme.

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Listings and entry

Listings by any data field are possible.
Two basic catalogues are produced:

(1) Area -- organization by
  (i) area
  (ii) subject
  (iii) scale
  (iv) date

(2) Subject -- organization by
  (i) subject
  (ii) area
  (iii) date
  (iv) scale

Either output can be printed on paper to produce book catalogues or directly on catalogue cards of any size.

Data layout for 3x5 catalogue card

AREA
SCALE
SUBJECT
DATE(S) OF INFO
TITLE/AUTHORS/EDITION/PLACE OF PUBLICATION
PUBLISHER/DATE OF PUBLICATION
NO. OF SHEETS/TYPE OF REPRODUCTION/COLOUR/SIZE
SERIES/PROJECTION/GEOGR. COORDINATES/LANGUAGE
RELIEF/MERIDIAN/INSETS/SOURCE/NOTES
NO. OF COPIES/LOCATION/CALL NUMBER

Processing

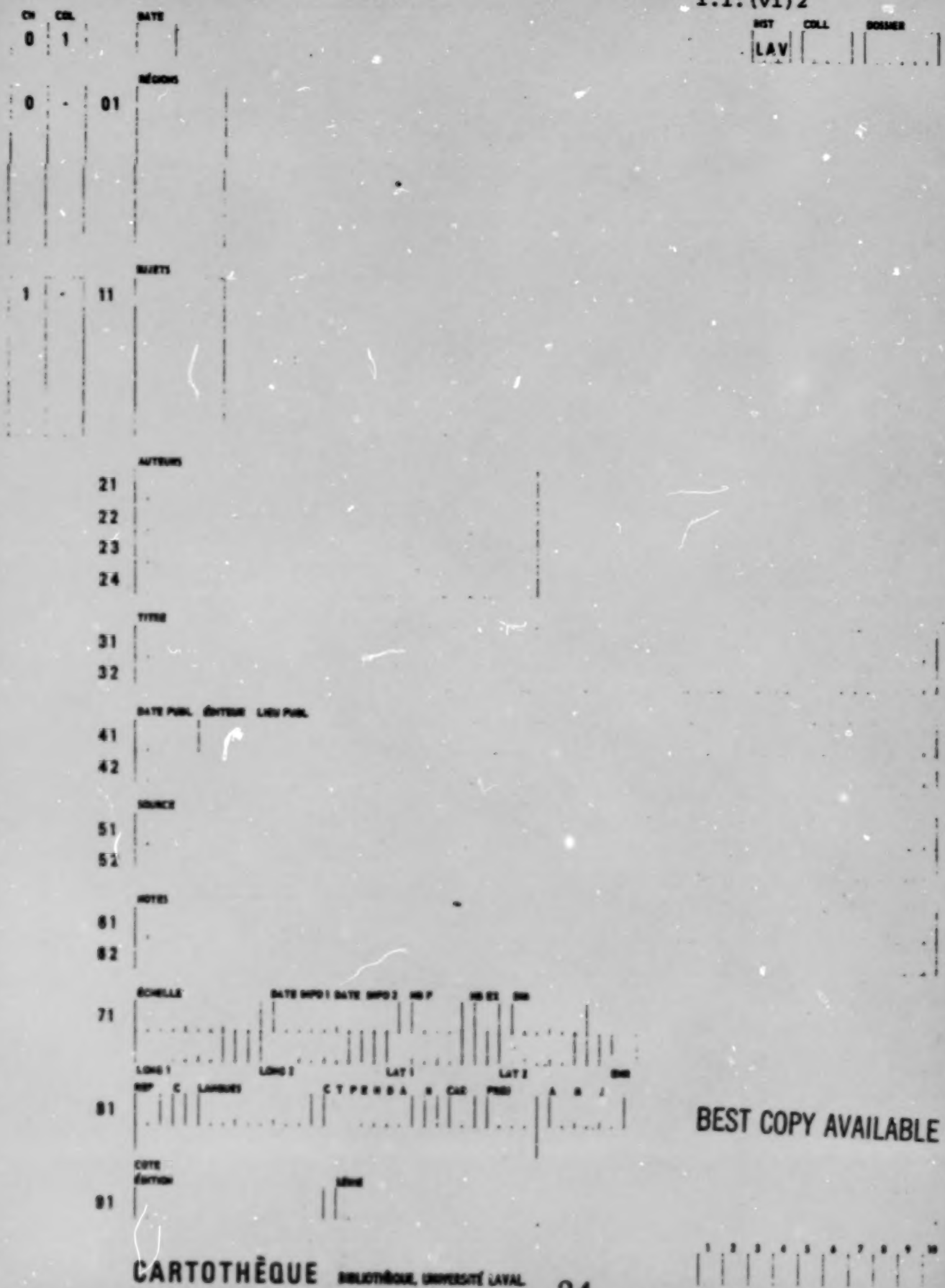
Data collection starts with the use of the input sheet (1.(vi) 2). It is filled out in handwriting by the cataloguer who is supplied with a procedure manual indicating the way in which the information should be entered.

This sheet is typed, using an IBM Selectric typewriter with 10 characters to the inch. (The input sheet was specially designed and formatted to comply with the requirements of this kind of typewriter.)

The data is put on magnetic tape by means of a key/tape. Processing is done using 6 computer programmes written in PL/1, up-dating the master file, reformatting, and printing of the listings.

The basic processing is of "batch type" with the following sequence: validation, reformatting, creation of area and subject files, translation of codes, files sorting, and printing out of the files. The two master files, area and subject, are up-dated after each batch, using the two up-date area and subject files produced during the batch mode.

(For details on processing sequence, refer to 1.(i) 2 General flowchart.)



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Cost

Systems costs only were available.

Total systems costs per entry: $1.00 (approximate)

This includes key/tape inputting, the master file up-date, master file reformatting, and the printing of the book catalogues (5 to 6 copies of each basic catalogue).

The reason for this figure is that the cost of staff time is included. A cost per entry without staff costs was not available. (This figure does not include cataloguing costs.)

The Guelph Map System

A system which, after input of map cataloguing records by Optical Character Recognition (OCR), creates a master file, from which printed listings (catalogues), including two types of area catalogues, a subject catalogue, a shelf list, a listing by scale, a listing by date plus special demand listings, such as cartobibliographies, listings by author, or publisher may be produced. Programmes were written in MARK IV and COBOL and are handled by an IBM-370-145 computer with the help of disks.

The system has been in operation since Summer 1973.

Maps are classified according to LC; main entry is by area. Physical access is facilitated through arrangement of the maps according to area; this is accomplished through use of the LC call number (modified in the subject cutter). Bibliographical access is made possible through organization in the catalogues, depending on the data elements describing a map. These were the original requirements which produced the following specific objectives in the design of the system: 1. access by browsing; 2. access by area; 3. access by subject; 4. access by scale; 5. access by date; 6. unique identification of each map; 7. fast and efficient processing; and, 8. use of a standard format entry.

*More information may be found in: Daehn, R., B. Hansen, and M. Horhota. "The Cataloging and classification of maps" in Beckman, M., ed. "Automated cataloging systems at the University of Guelph Library," Computerized cataloging systems series v.1, no. 1. Peoria, Ill., LARC Press, Ltd., 1974.

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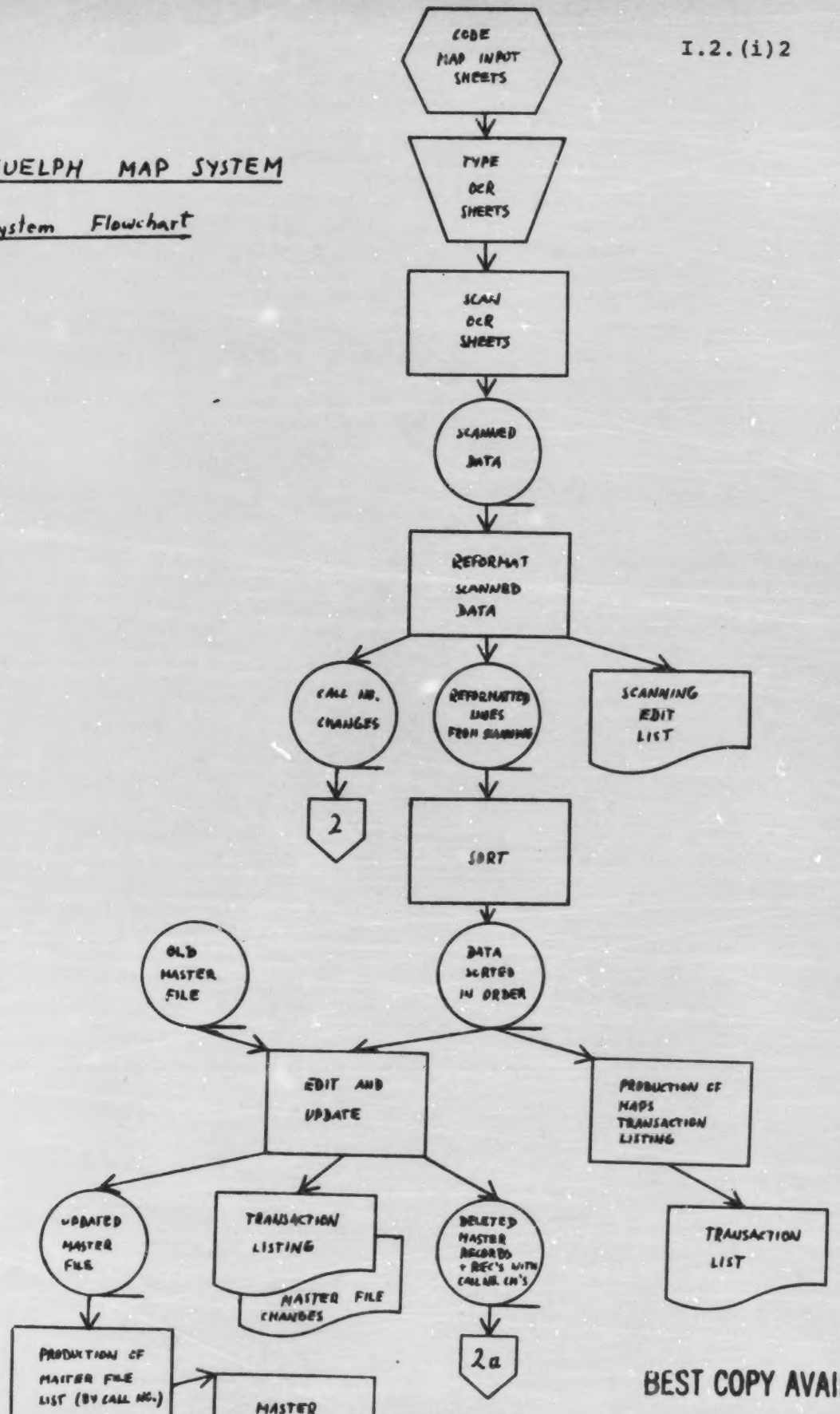
GUELPH MAP SYSTEM

System Flowchart



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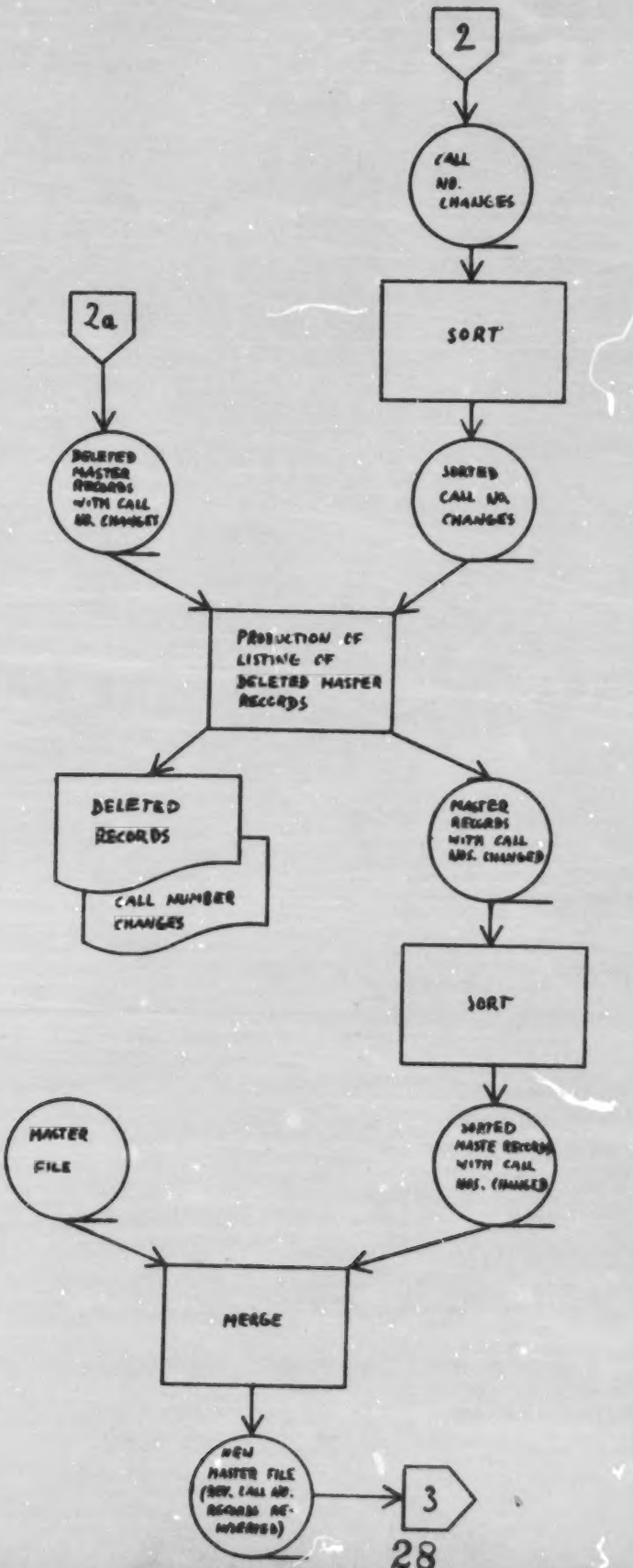

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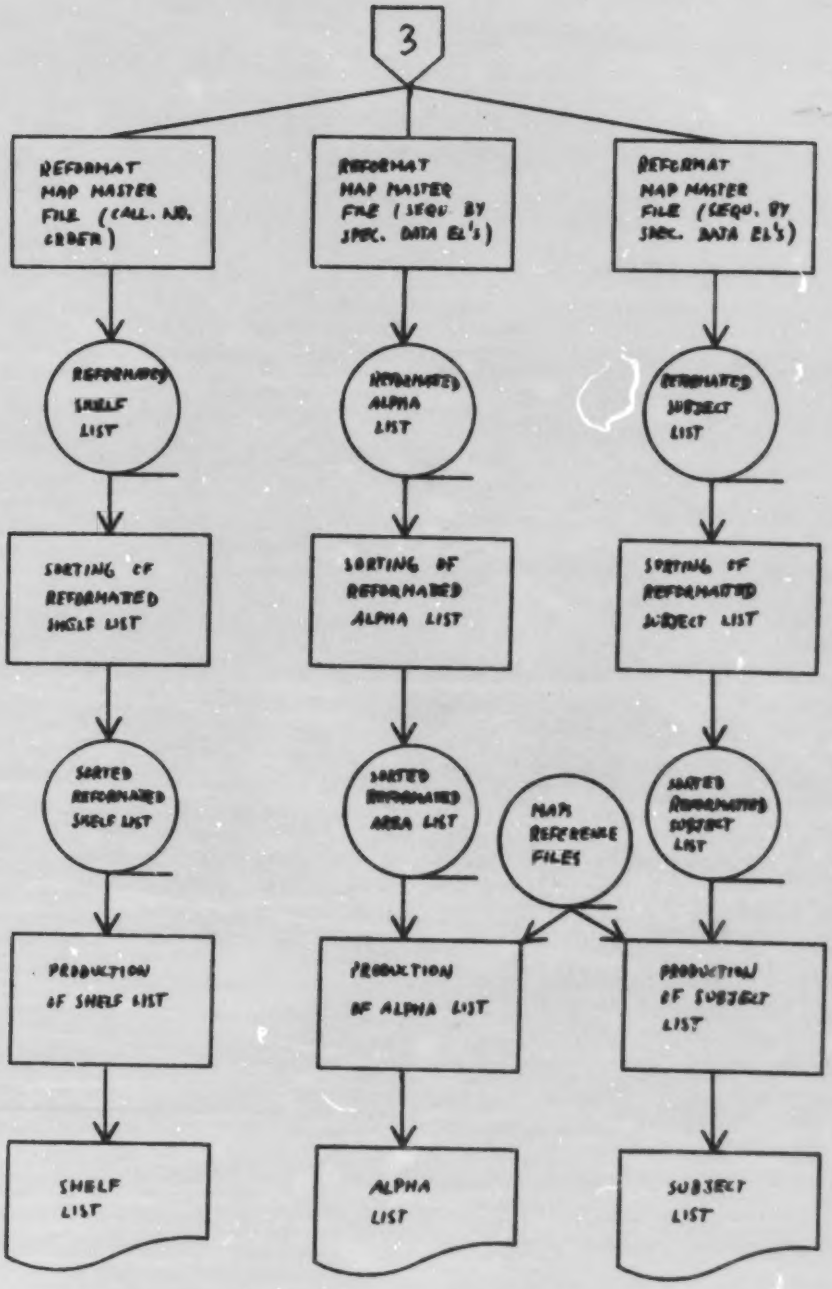
3
REFORMAT MAP MASTER FILE (CALL. NO. ORDER)
REFORMAT MAP MASTER FILE (SEQU. BY SPEC. DATA EL'S)
REFORMAT MAP MASTER FILE (SEQU. BY SPEC. DATA EL'S)
REFORMATED SHELF LIST
REFORMATED ALPHA LIST
REFORMATED SUBJECT LIST
SORTING OF REFORMATED SHELF LIST
SORTING OF REFORMATED ALPHA LIST
SORTING OF REFORMATED SUBJECT LIST
SORTED REFORMATED SHELF LIST
SORTED REFORMATED AREA LIST
MAP REFERENCE FILES
SORTED REFORMATED SUBJECT LIST
PRODUCTION OF SHELF LIST
PRODUCTION OF ALPHA LIST
PRODUCTION OF SUBJECT LIST
SHELF LIST
ALPHA LIST
SUBJECT LIST

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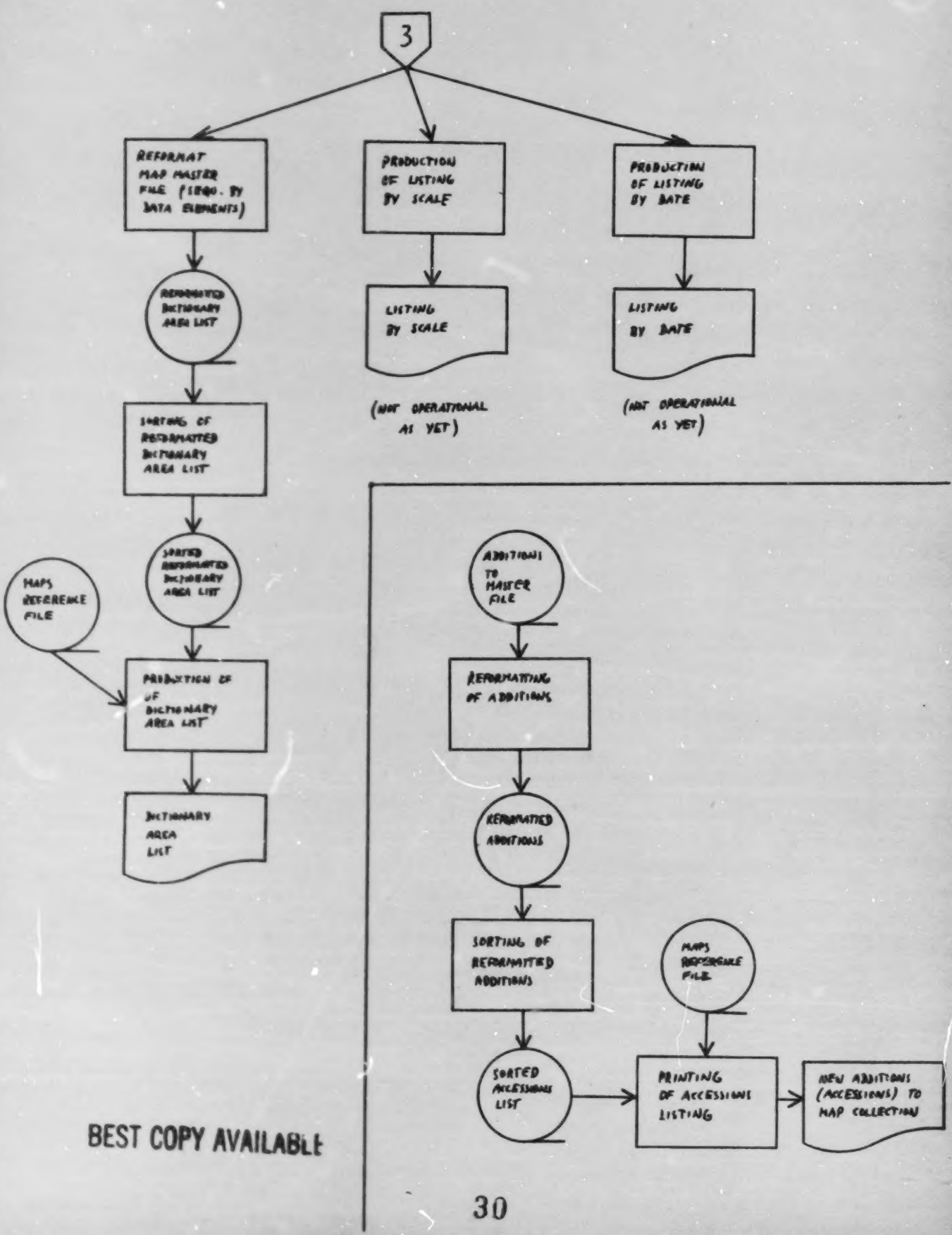
3
REFORMAT MAP MASTER FILE (SEQU. BY DATA ELEMENTS)
PRODUCTION OF LISTING BY SCALE
PRODUCTION OF LISTING BY DATE
REFORMATTED DICTIONARY AREA LIST
LISTING BY SCALE
LISTING BY DATE
(NOT OPERATIONAL AS YET)
(NOT OPERATIONAL AS YET)
SORTING OF REFORMATTED DICTIONARY AREA LIST
SORTED REFORMATTED DICTIONARY AREA LIST
MAPS REFERENCE FILE
PRODUCTION OF DICTIONARY AREA LIST
DICTIONARY AREA LIST
ADDITIONS TO MASTER FILE
REFORMATTING OF ADDITIONS
REFORMATTED ADDITIONS
SORTING OF REFORMATTED ADDITIONS
MAPS REFERENCE FILE
SORTED ACCESSIONS LIST
PRINTING OF ACCESSIONS LISTING
NEW ADDITIONS (ACCESSIONS) TO MAP COLLECTION

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RECORD FORM FOR A MAP ENTRY

GUELPH - FIXED FIELDS

Tag	Columns	Field	Length
	1-5	Master call no. area code	5
	6-9	Master call no. sub-area code	4
	10-14	Master call no. subject code	5
	15-21	Master call no. date	7
	22-26	Printing call no. area code	5
	27-30	Printing call no. sub-area code	4
	31-35	Printing call no. subject code	5
	36-42	Printing call no. date	7
	43-50	Printing call no. sheet number	8
	51	Non-print	1
	52-60	Scale	9
	61-62	Projection	2
	63-65	Language	3
	66-67	Location	2
	68-71	Form	4
	72-76	Other subject 1	5
	77-81	Other subject 2	5
	82-86	Other subject 3	5
	87-93	Size	7
	94	Cross-reference	1
	- VARIABLE FIELDS		
	95-96	Variable field size	2
*	97-98	Filler	2
*	99-100	Function code	2
*	101-N	Variable data	0 - 255

* This data may be repeated "n" times

Tag	Field
10	Main entry -- area; main subject
20	Title
25	Edition
30	Imprint
40	Collation
50	Series statement
61	Personal author
62	Corporate author
63-69	General note
80	Holdings

FORMAT OF AN ENTRY

GUELPH

(96 char. positions — fixed
"n" x 255 char. positions — variable)

fixed

1 — 21	22 — 50	51	52 — 60	61 — 62
MASTER CALL NO.	PRINTING CALL NO.	NON PRINT	SCALE	PROJECTION
21	29	1	9	2

63 — 65	66 — 67	68 — 71	72 — 76	77 — 81
LANGUAGE	LOCATION	FORM	OTHER SUBJECT 1	OTHER SUBJECT 2
3	2	4	5	5

82 — 86	87 — 93	94	95 — 96	
OTHER SUBJECT 3	DIMENSIONS	CROSS REFERENCE	VARIABLE FIELD SIZE	
5	7	1	2	

variable

97 — 98	99 — 100	101 — N		
FILLER	FONCTION CODE	VARIABLE DATA		
2	2			

* may be repeated "n" times

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GUELPH

Variable fields (expansion of columns 97 to N)

97 98	99 100	101 355	356 357	358 359
FILLER 2	FUNCTION CODE 10 2	MAIN ENTRY (AREA AND SUBJECT NAME) 255	FILLER 2	FUNCTION CODE 20 2

360 614	615 616	617 618	619 873	874 875
TITLE 255	FILLER 2	FUNCTION CODE 25 2	EDITION 255	FILLER 2

876 877	878 1132	1133 1134	1135 1136	1137 1391
FUNCTION CODE 30 2	IMPRINT (PUBL., PLACE OF PUBL., DATE OF PUBL.) 255	FILLER 2	FUNCTION CODE 40 2	COLLATION 255

1392 1393	1394 1395	1396 1650	1651 1652	1653 1654
FILLER 2	FUNCTION CODE 50 2	SERIES STATEMENT 255	FILLER 2	FUNCTION CODE 61 2

1655 1909	1910 1911	1912 1913	1914 2168	2169 2170
PERSONAL AUTHOR(S) 255	FILLER 2	FUNCTION CODE 62 2	CORPORATE AUTHOR(S) 255	FILLER 2

2171 2172	2173 3957	3958 3959	3960 3961	3962 4216
FUNCTION CODE 63-69	GENERAL NOTES 7 x 255	FILLER 2	FUNCTION CODE 80 2	HOLDINGS 255

NOTE: 255 is the maximum no. of characters allowed per variable field

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Data elements are explained in Map System Manual

Classification

Guelph --

The classification consists of two parts:

(1) by area

(2) by subject

Classification by area is based on the LC G-Schedule which has been adopted with only minor and very few changes.

Classification by subject is based on the LC "Table of subject subdivisions" (Subdivisions for atlases and maps II)*. Subject headings were compiled for LCSH**, AGS***, and Boggs and Lewis**** depending on their suitability to maps. These headings were fit into the List of Subjects***** depending on their place in the hierarchy of subject classification. For this purpose, a subject code (not a cutter number) is used for each subject heading. There are very few subject heading subdivisions (subheadings). The list can be expanded as the need arises.

Maps are classified by area and subject to produce a mnemonic call number. Up to 4 subjects may be assigned to a map.

*U.S. Library of Congress. Subject Cataloging Division. Classification; Class G; Geography ... 3rd ed. Washington, D.C., 1954, pp. 176-83; plus supplements.

**-----. Subject headings used in the dictionary catalogues of the Library of Congress. 7th ed. Washington, D.C., 1966; plus supplements.

***American Geographical Society. Cataloging and filing rules for maps and atlases in the Society's collection. New York, N.Y., 1969.

****Samuel W. Boggs and D. C. Lewis. Classification and cataloguing of maps and atlases. New York, N.Y., Special Libraries Association, 1945.

*****a form of the subject table described at 2.(iv) 1.

OUTLINE

G

Atlases.

By country.—Continued.

1780–2794 Eurasia, Africa, etc. Eastern Hemisphere.
1791–2102 Europe (exclusive of Russia).
2110–2193 Russia. Union of Soviet Socialist Republics (U. S. S. R.).
2200–2444 Asia (exclusive of Russia).
2450–2739 Africa.
2740–2799 Australasia.
2800–3092 Oceans. Oceanic islands.
3100–3102 Antarctica.

G MAPS

3160–3171 Celestial globes. Terrestrial globes.
3180 Universe.
3190–3192 Celestial maps.
3200–3206 World.
3210–3272 Northern and Southern Hemispheres. Tropics, polar regions, etc.

By country.

3290–9084 America. Western Hemisphere.
3300–5184 North America.
3310–3351 Continental waters. Coasts.
3380–3654 Canada. Greenland. St. Pierre and Miquelon Islands.
3690–4381 United States. Alaska, etc.
4390–4392 Caribbean area.
4400–5663 Latin America.
4410–4763 Mexico.
4800–4884 Central America.
4900–5184 West Indies.
5300–5663 South America.
5670–9084 Eurasia, Africa, etc. Eastern Hemisphere.
5680–5696 Europe and Africa, Eurasia, etc.
5700–6966 Europe (exclusive of Russia).
7000–7338 Russia. Union of Soviet Socialist Republics (U. S. S. R.).
7400–8194 Asia (exclusive of Russia).
8050–8194 Malay Archipelago.
8200–8904 Africa.
8950–9084 Australasia.
9100–9797 Oceans. Oceanic islands.
9800–9802 Antarctica.
9900–9980 Unlocalised maps (Hypothetical, imaginary, unidentified).

MATHEMATICAL GEOGRAPHY

GA

1– 2 Periodicals. Societies. Collections.
3 History.
4 Tables.
5– 22 General works.
51– 87 Surveys.

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OUTLINE OF SUBJECT CATEGORIES

A Special category atlases and maps*
B Mathematical geography
C Physical sciences
D Biogeography
E Human and cultural geography
F Political geography
G Economic geography
H Mines and mineral resources
J Agriculture
K Forests and forestry
L Fish and fisheries
M Manufacturing and processing
N Technology. Engineering. Public works
P Transportation and communication
Q Commerce and trade. Finance
R Military and naval geography
S Historical geography

*atlases are at present not included in the system

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Reference tables

Area table -- the table is based on the LC G-Schedule for maps and also incorporates area cross-references
-- area names (those used in the classification--not main entry) are input as the class number as part of the call number (for explanation, refer to 2.(iii) Classification); these area names are printed out utilizing the area table in the production of the area listing (for explanation, refer to 2.(v) Listings and entry) as headings

Subject table -- the table is an alphabetical list of subject headings, its alphabetical arrangement based on I.D. numbers with an initial interval of 1,000 between each heading; it also incorporates subject cross-references
-- subject headings are input in code (5 digit alphanumeric), the first as part of the call number (refer to 2.(ii) Format) and the other 3 in 3 fixed, separate fields; the first subject heading is printed out in full in the entry for a map utilizing the subject table and the 3 others are printed out in full as headings in the subject listing also utilizing the subject table

Form table -- 2 digit alphabetic code is input; form is indicated in the entry for a map utilizing this table

Language table -- 3 digit alphabetic code (acronym) is input; full name of the language is printed out in the entry
-- presently 95 languages in the table

Location table -- 1 digit alphabetic code for on campus location is input and printed out in full in the entry utilizing this table

Projection table -- 2 digit alphabetic code is input and printed out as the full name in the entry utilizing this table

-- presently 53 projections in the table

Listings and entry

Listings by most data fields are possible.
4 basic listings are produced:

(1) Classified area -- organization by
  (i) area (area name from LC G-Schedule)
  (ii) within area by the categories "general", "subject", "regional", "major political units", "cities and towns"
  (iii) within each category (other than "general") alphabetically by specific subject
  (iv) within the category "general" and within each specific subject by date

(2) Alphabetical area -- organization by
  (i) area (name of the area found in each entry--main entry area name)
  (ii) within area alphabetically by subject
  (iii) within subject by date

(3) Subject -- organization by
  (i) subject, alphabetically
  (ii) within subject alphabetically by area
  (iii) within area by date

(4) Shelf -- this listing is a printout of all entries (including analytics) by call number order

Input is printed on paper to produce book catalogues.

Data layout for an entry in any of the listings

```
   CALL NUMBER
AREA -- SUBJECT
   TITLE
   EDITION
   SCALE/PROJECTION/SIZE/LANGUAGE
   IMPRINT
   AUTHOR(S)
   NOTES
   HOLDINGS, LOCATION
```

Processing

Data input starts with the map coding sheet (2.(vi) 2) which is filled in by the map cataloguer and revised by a catalogue librarian.

The data is typedon continuous form, using an IBM Selectric typewriter with OCR font.

Records are read by a CDC 915 Optical Page Reader to produce a magnetic tape and once per month, the tapes are used to update the Map Master File from which the listings are produced.

Any record can be deleted, or any field in any record may be accessed to change the data contained in it.

(For detailed flow, refer to 2.(i) 2-5 System flowchart.)

F/M CODE

MAP INPUT SHEET

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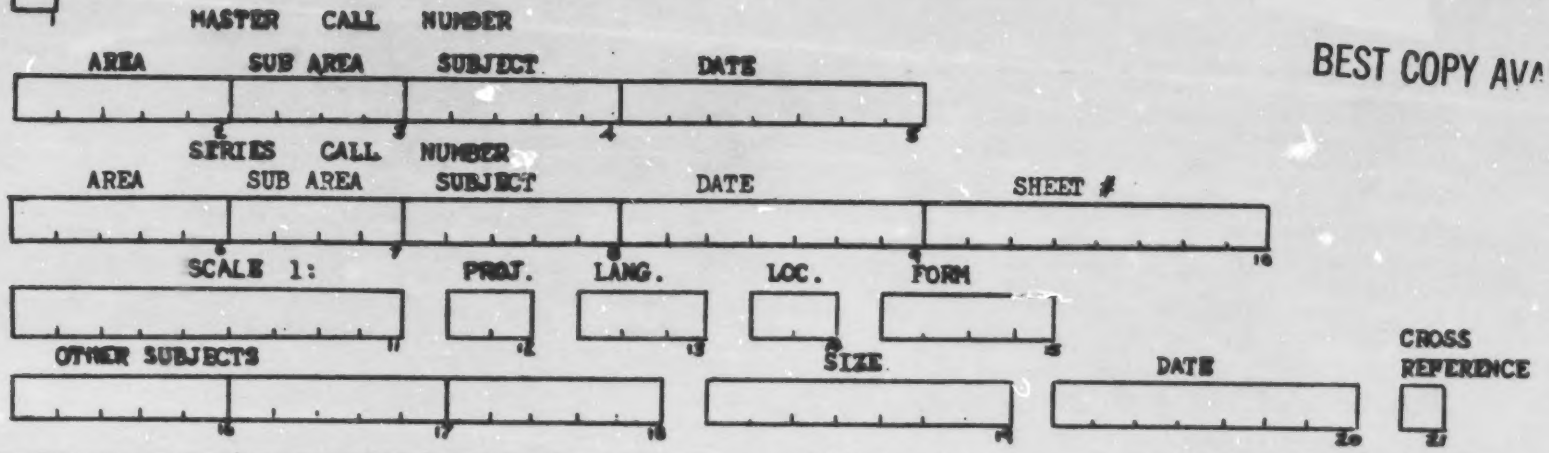

CODE F/M VARIABLE DATA

Cost

Systems costs only are available at the time of writing this report.

OCR: cost per line -- 0.9¢ (max. 100 characters/line)

cost per entry -- 7.2¢ (at an average of 8 lines/entry; entries vary from 6 to 12 lines for the sample used)

Maintenance of master file:

using a sample update of the master file, 889 new records and 112 corrections were entered at a cost of $8.21

cost per entry -- 0.082¢

Preparation of the listings (reformatting master file):

(1) Shelf -- 1.3¢/entry
(2) Alphabetical area -- 1.2¢/entry
(3) Classified area -- 1.2¢/entry
(4) Subject -- 0.8¢/entry

Printing of the listings (to produce book catalogues):

(1) Shelf -- 0.9¢/entry
(2) Alphabetical area -- 0.9¢/entry
(3) Classified area -- 0.9¢/entry
(4) Subject -- 0.6¢/entry

When producing more than one listing of each kind, multi-form paper is used (1 printing to produce 4 listings of the same kind); i.e., the cost per entry is then ¼ of the figures per entry given above.

Total systems costs per entry: 15.08¢

This figure includes scanning, maintenance of the master file, preparation and printing. It is also based on the assumption that the entry appears in all four listings and thus represents a maximum cost per entry.

II

ANALYSIS

System CARTESS and the Guelph Map System

Both systems have the same basic principle--to make maps available to the user. In each case, this is achieved with the help of data processing to create a file from which the information for each map may be taken and printed out onto hard copy in various arrangements to provide the user with various points of cartobibliographic access.

Each system also entails provisions for capturing every type of cartographical representation: single maps, maps in series, sets, and non-autonomous maps found in books and periodicals. This is made possible because each system is based on its own cataloguing rules for maps and each system utilizes a standard format. This standard format, in each case, also facilitates the manipulation of individual data elements in each record, thus providing the possibility of selective up-dates and the production of various listings and specialized cartobibliographies.

The systems, having developed independently, are reasonably similar. Both operate on the same principle, as outlined above, to achieve the same purpose. This is, of course, reflected in the provisions made for data in the standard formats, the key issue in discussing compatibility in this report. Differences exist, naturally, in classification, processing and the products of each system, and these will be discussed below. Compatibility of principles, however, is a prerequisite if an eventual bilingual system, utilizing the best of both systems, is to be considered. This pre-condition is adequately fulfilled.

COMPARISON OF DATA ELEMENTS IN RECORD STRUCTURE (CARTESS, GUELPH)

field	format		tag		type		char.		length (max. for variable field)	
	C	G	C	G	C	G	C	G	C	G
I.D. no.	x		-		F		AN		13	
Call no.	x	x	(pt. of 81)	-	V	F	AN	AN	32	50
Subj. code	(incl. under tag 11)	x		-		F		AN		15 (3@5ea.)
Area	x	x	01	10	F	V	N	AN	30 (5@6ea.)	255
Subject	x	x	11		F		N		30 (5@6ea.)	
Author	x	x	21-24	61,62	V	V	AN	AN	128 (4@32ea.)	510
Title	x	x	31,32	20	V	V	AN	AN	128	255
Imprint (date of publ., publ., place)	x	x	41,42	30	V	V	AN	AN	128	255
Source	x	(incl. under tags 63-69)	51,52		V		AN		128	
Notes	x	x	61,62	63-69	V	V	AN	AN	128	1,785
Scale	x	x	71	-	F	F	AN	N	10	5
Date info 1	x	(incl. under call no.)			F	(F)	AN	(AN)	5	(7)
Date info 2	x								5	
No. of sheets	x	(incl. under tag 40)			F		N		4	
No. of copies/ Holdings	x	x		80	F	V	N	AN	2	255
Size	x	x		-	F	F	N	AN	6	7
Geogr. coord's	x				F		AN		30	
Form	x				F		AN		2	
Collation		x		40		V		AN		255
Cross ref. indic.		x		-		F				1
Location		x		-		F		A		2
Type of reprod.	x	x	81	-	F	F	N	A	2	4
Code for col.	x	(incl. under tag 49)			F		N		1	
Language(s)	x	x		-	F	F	A	A	9	3

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field	format		tag		type		char.		length (max. for variable field)	
	C	G	C	G	C	G	C	G	C	G
Relief repr.	x	(incl. under tags 63-69)			F		N		7	
Prime meridian	x	(incl. under tags 63-69)			F		N		1	
Insets	x	(incl. under tags 63-69)			F		N		2	
Projection	x	x		-	F	F	N	A	4	2
Edition	x	x	91	25	F	V	AN	AN	15	255
Series	x	x		50	F	V	AN	AN	49	255
Date of entry into file	x				F		N		6	

F - fixed field
V - variable field

A - alphabetic
N - numeric
AN - alphameric

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I.D. no. -- not used in the Guelph format since the call number is unique and serves as I.D. number

Call number -- the call number in the case of CARTESS is unique to the system and is used for processing purposes only; it is given as a data element but is not used for retrieval purposes; the emphasis on call number is much less in CARTESS and unique call number concept and shelf list production were not considered as such in the design of this system

-- in the case of the Guelph format, the class number (area) and the sub-area cutter follow LC; the first character (alphabetic) of the subject code is the same as for an LC subject cutter; this has the distinct advantage of providing a link with LC MARC (Maps) and tapes available in that format;

-- in the Guelph format, two call numbers--a master call number and a printing call number--are used; this device permits the creation of analytic entries (i.e., entries for individual sheets of a map series, linked to the series by the printing call number)

Subject code -- discussed under "Subject" below

Area -- this field is tagged in both systems; in the case of CARTESS, it is fixed and provides for 5 area codes; the codes are equivalent to the class number in the call number of the Guelph map format, except that, with the provision for 5 areas, this field creates the possibility of indexing a map for more than one area; at this time, the lowest level of area indexing goes to the sub-political unit; special provision was made to accomodate urban entities (the name of a city is written out in full in the "Notes" field and, through programming, this name is located in the area field; for urban maps, the name of the city is used as the area name, with digit "9" in the last position of the area code indicating

this;
-- for the Guelph format, area (in addition to the class number--refer to "Call number" above) is written out in full; this area name is independent of the area name under which the map is classified, rather is it the name of the natural geographic region or political unit as it may be found in an official gazetteer; this necessitates a variable field; also, this area name is the main entry;
-- the systems differ in this aspect of each format; CARTESS indexes up to 5 areas (based on its classification), all input in a fixed field; the Guelph format provides for 1 classification of a map in the fixed call number field and also spells out a specific area name accessible in a variable field

Subject -- in the case of CARTESS, it is a fixed field and provides for 5 subject codes (based on its classification);
-- in the case of the Guelph format, 1 subject code appears as part of the call number and this code is also translated and written out in full in field 10, separated from the area name by "--"; 3 other subjects may be coded, bringing the total number of subject headings which may be assigned to 4

Author(s) -- both formats provide tagged variable fields for this data element; the Guelph format, however, provides almost four times as much space

Title -- both formats provide tagged variable fields for this data element; the Guelph format provides a little over twice as much space

Imprint -- both formats provide tagged variable fields for this data element; the Guelph format provides a little over twice as much space

Source -- for non-autonomous maps; the CARTESS format provides 2 tagged variable fields for this data element; (refer also to I.1.(iv) Reference tables--journal acronyms); the Guelph format has no special provision for this type of information; it is given in the "Notes" fields

Notes -- in the case of CARTESS, 2 tagged variable fields are provided;

-- in the case of the Guelph format, 7 tagged variable fields are available; included in the "Notes" fields are: Source, Relief representation, Prime meridian (if other than Greenwich), and the description of insets; this type of information was included here because, in view of identified needs, it was not necessary to provide separate fields for this type of information; with the exception of "relief representation" which could usefully be coded in a fixed field (as in CARTESS), this treatment appears adequate

Scale -- in the CARTESS format, this is a fixed sub-field of 10 characters, part of a tagged variable field; this is adequate for a scale down to 1:9,999,999,999, or the inclusion of an alphabetic abbreviation indicating i.e. "approximate" for a derived scale);

-- in the Guelph format, this is a fixed field of 9 characters; it is adequate for a scale down to 1:999,999,999; this data element, however, is limited to numeric characters and no modicfication by i.e. "approximate" is possible at the present time

Date info 1/date info 2 -- in CARTESS, this is a fixed sub-field of 5 characters for each of the 2 dates; this is adequate for the inclusion of a "?" for uncertain dates;

-- in the Guelph format, the 2 dates of information are part of the call number field as a fixed sub-field of 7 characters; here too, the number of characters also

unfortunately is limiting at the moment; i.e., for a starting and closing date of a series--1956-63--there is no room to provide for uncertainty in either date

No. of sheets -- in the CARTESS format, this is a fixed field of 4 characters; in the Guelph format, this information is included in the "Collation"

No. of copies/holdings -- in the case of CARTESS, this is a fixed sub-field of 2 numeric characters; this permits no more than a statement of the number of copies held; -- in the case of the Guelph format, this is a tagged variable field; it allows, in addition to stating the number of copies held, a more detailed description of holdings, i.e., in the case of an incomplete series

Size -- in both formats, size is a fixed field (sub-field in CARTESS); size is specified in centimeters; a difference exists here, in that the measurements given in the CARTESS format may include textual information not part of the cartographic representation; in the Guelph format size field, a standard size measurement is provided--only the dimensions of the cartographic representation (excluding textual information such as a legend, unless included within the neat-line); also, if there is a substantial difference (1/3 or more) between the size of the map and the sheet, the sheet measurements are also given in the "Collation"

Geographical coordinates -- CARTESS provides for an indication of the part of the earth's surface covered by a map indicating the ranges of latitude and longitude; this is a nice feature since it might be the basis for another form of retrieval--access and retrieval by specification of latitude and longitude; the Guelph format does not have this feature at this time

Form -- provision exists in the form of a 2 character fixed sub-field in CARTESS but is not used as yet

Collation -- CARTESS does not have such a field; information normally found here is put into various, separately designated fixed fields and built up into the standardized form in the printing programme

-- in the Guelph format, this variable field is really a catch-all for information related to the physical description of a map and includes an indication of colour and the number of sheets in a series (if completed and known) or set; other standardized information on physical description, such as size, type of reproduction, etc., is put into their respective fixed fields (as it is in CARTESS)

Cross-reference indicator -- provision exists in the form of a 1 character fixed field in the Guelph format but is not used as yet

Location -- CARTESS shows location implicitly in the sub-field "Collection" of the I.D. number

-- the Guelph format provides for a location code; this is for internal use and a wider application (i.e. different universities) might be limited by the allotment of only 2 characters in this fixed field; (refer to I.2.(iv) Reference tables)

Type of reproduction -- in CARTESS, a 2 character fixed sub-field provides for entry of a code (refer to I.1.(iv) Reference tables);

-- in the Guelph format, a 4 character fixed field provides for entry of a code (refer to I.2.(iv) Reference tables)

Colour indication -- the CARTESS format provides a 1 character fixed sub-field for entry of a code (refer to I.1.(iv) Reference tables);

-- the Guelph format does not provide a separate field for this information; it is included in the variable field "Collation"

Language(s) -- in the case of CARTESS, up to 3 languages may be specified in this fixed sub-field (refer to I.1.(iv) Reference tables);

-- in the case of the Guelph format, only one language (if other than English) is specified at present (refer to I.2.(iv) Reference tables); this is somewhat limiting where maps with more than one language (i.e. in the legend) are involved

Relief representation -- CARTESS provides a 7 character fixed sub-field (refer to I.1.(iv) Reference tables);

-- the Guelph format makes no provision for this information in a separate field; it is included in the variable "Notes" fields; separate provision (in coded form) is better method

Prime meridian -- CARTESS provides a 1 character fixed sub-field (refer to I.1.(iv) Reference tables);

-- the Guelph format makes no provision for this information in a separate field; it is included in the variable "Notes" fields; this is adequate

Insets -- CARTESS provides a 2 character fixed sub-field to indicate the number insets found on a map; if importance warrants it, an inset may be catalogued separately (in a new record);

-- the Guelph format includes information (not limited to

the number of insets) on insets in the variable fields "Notes"; where deemed necessary, insets may be catalogued separately and in full as an analytic record (linked with the master record by the printing call number)

Projection -- the CARTESS format provides for a 4 character code (refer to I.1.(iv) Reference tables) in a fixed sub-field;

-- the Guelph format provides for a 2 character code (refer to I.2.(iv) Reference tables) in a fixed field

Edition -- CARTESS provides a variable field limited to 15 characters;

-- the Guelph format provides a variable field, allowing an edtion statement

Series -- in the case of CARTESS, a variable field exists, limited to 49 characters;

-- in the case of the Guelph format, a variable field is provided with approximately five times as much space, allowing a series statement (i.e., full series title)

Date of entry into file -- no such provision is made in the Guelph format

Summary: 1. The formats are compatible in that all fields to which access is necessary under normal requirements are in fact accessible and searchable. Further, all data elements which are considered essential in map cataloguing, are found in both formats.

2. CARTESS provides implicitly for collation (as used in the Guelph format), and lacks a cross-reference indicator, and location. The Guelph format lacks provisions for I.D. number, geographical coordinates, form (as used in CARTESS), and date of entry into file.

Except for the lack of geographical coordinates in the Guelph format, these differences are not judged to be serious.

3. In the CARTESS format, all fields are essentially fixed fields--all fields have a fixed number of characters, with the exception of a few fields which are really fixed variable (variable fields with a maximum number of characters). Those fields which are indicated as "variable" need not have all character spaces filled.

In the Guelph format, fixed fields are not tagged and are accessible because they always fill the same character positions in different records. "Variable" fields are also fixed variable because they have a maximum number of characters. These fields are all tagged.

The Guelph format is perhaps a little more flexible in that variable fields are not structured as most variable fields are in the CARTESS format. Even though variable fields in the Guelph format are not true variable fields either (limited to 255 characters), the concept of such fields is utilized to greater advantage.

4. Differences exist also in the type of character permitted for various fields; i.e., area--CARTESS: numeric; Guelph format: alphameric. This is also true for

subject, scale, holdings, type of reproduction, and projection.

Except for scale which points out an inadequacy in the Guelph format, these differences are the result of the code used. Therefore, this is not so much a format incompatibility but it points out a simple difference in code. The significance here is not the incompatibility of codes either but the fact that the same method is used to save time in cataloguing and space in the format. This difference in type of character permitted for these fields nevertheless prohibits any transfer of data between the two formats in these fields without an interface.

5. An outstanding difference between the two formats is the amount of space available in each. Both have a maximum size--903 characters for the CARTESS format, and 4,216 characters for the Guelph format (provision exists for repeating variable fields "n" times but only 16 are designated at this time). Taking into account what information goes into the various fields in each format, it is apparent that the Guelph format permits much more detailed cataloguing than the CARTESS format.

6. From the foregoing table of comparison of the two formats, the verbal discussion and comparison of individual data elements as they are structured in each format, and the above summary, it is considered impractical to adapt the Guelph format to the CARTESS format.

Comparison of area and subject classification in CARTESS and the Guelph system

Guelph (LC)		Laval
G3180, 3190 - 3192	Universe	000 000
G3200 - 3206	World	
G3210 - 3212	Northern hemisphere	000 010
G3220 - 3222	Southern hemisphere	000 020
G5670 - 5672	Eastern hemisphere	000 040
G3290 - 3292	Western hemisphere	000 050
G3240 - 3241	Tropical regions	000 060
G3250 - 3251	Temperate zones	---
G3260 - 3261	Polar regions	000 070
G3230 - 3231	Land hemisphere	000 080
G3235 - 3236	Water hemisphere	000 090
G3270 - 3272	Arctic	010 000
G9800 - 9802	Antarctica	020 000
G9100 - 9797*	Atlantic Ocean	050 000**
	Pacific Ocean	060 000**
	Indian Ocean	070 000**
G5700 - 6966	Europe	100 000 (with Russia)
G8200 - 8904	Africa	200 000
G7000 - 8194 (with Russia)	Asia	300 000
(incl. in G9100 - 9797)	Oceania	400 000
G4400 - 5663	Latin America	500 000
G3300 - 5184	North America	600 000

*provides for islands in these oceans

**provides for named parts of these oceans (does not include islands)

The practicality of each classification depends on three considerations: 1. logic of the structure; 2. room for expansion; and, 3. potential for application and benefits derived.

Area.--As the overall outline of both the CARTESS and LC classifications on the preceding page illustrates, both classifications break down the earth's surface into logical areas. In this overall outline, both classification schemes are reasonably compatible, with differences only in order, the classification of islands, and, of course, the class numbers provided.

To examine both classifications in more detail, a sample area --Canada--was chosen. (See outlines at 1(iii) 3-7.) This example is particularly relevant because it can safely be assumed that the bulk of the holdings in both libraries is in this area.

CARTESS		LC
630 000	Canada	G3400 - 3402
630 040	Eastern	G3405 - 3407 (Guelph mod.)
633 000	Quebec	G3450 - 3454
633 300	Québec (admin. region)	G3452
633 310	Rivière du Loup	G3454 R..
633 330	Québec	G3454 Q..
633 350	Chaudière	G3454 C..

This example was constructed from the classification schedules to show the hierarchical nature of each. In both cases, the structure is from general to specific. CARTESS achieves this through a strictly numeric order; LC also uses a numeric order but this is modified by cutter numbers which then provide also an alphabetic arrangement (as shown in the case of the cities listed in the above example).

Differences exist in the classification of continental waters and international lakes and rivers. This, however, does not imply either an advantage or disadvantage in either case since the logic of the structure is not impaired.

II.1.(iii)3
G

MAPS

Area classification for maps.[1]
History and description of maps in GA.

3160	Celestial globes.
3170–3171	Terrestrial globes.
3180	Universe.
3190–3192	Celestial maps.
3200–3202	World.
3205–3206	Miscellaneous.
	Parts of world on one sheet, atlases in folder form, etc.
	Western Hemisphere, *see* G 3290–3292.
	Eastern Hemisphere, *see* G 5670–5672.
3210–3212	Northern Hemisphere.
3220–3222	Southern Hemisphere.
3230–3231	Land Hemisphere.
3235–3236	Water Hemisphere.
3240–3241	Tropics. Torrid Zone.
3250–3251	Temperate Zones.
3260–3261	Polar regions. Frigid Zones.
3270–3272	Arctic regions.
	See also G 9780–9797, Arctic Ocean.
	Antarctica, *see* G 9800–9802.
	By country.[1]
3290–3292	America. Western Hemisphere.
3300–3302	North America.
3310–3312	Continental waters. International lakes and rivers.
	Including the Great Lakes.
3320–3321	Atlantic coast.
3330–3331	Gulf coast.
3350–3351	Pacific coast.
3380–3384	Greenland.
G 3400–3402	Canada. (Canada, Eastern 3405-3407)
3410–3412	Maritime Provinces.
3420–3424	Nova Scotia.
3424	Cities and towns, A–Z.
	e. g. .H3 Halifax.
	.S2 St. John.
3430–3434	New Brunswick.
3440–3444	Prince Edward Island.

[1] For subdivisions, *see* Tables, p. 173–183.

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G MAPS G

By country.[1]
North America.
Canada—Continued.

3450–3454 Quebec.
3454 Cities and towns, A–Z.
e. g. .M8 Montreal.
.Q3 Quebec.
Canada, Southern 3465 – 3467
3460–3464 Ontario.
3464 Cities and towns, A–Z.
e. g. .H3 Hamilton.
.O8 Ottawa.
.T6 Toronto.
Canada, Southern .W7 Windsor. 3465 – 3467
3470–3472 Prairie Provinces.
3480–3484 Manitoba.
3490–3494 Saskatchewan.
3500–3504 Alberta.
3510–3514 British Columbia. Canada, Northern 3515 – 3517
3520–3524 Yukon.
3530–3532 Northwest Territories.
3540–3544 Mackenzie District.
3550–3554 Keewatin District.
3560–3564 Franklin District.
3600–3604 Newfoundland.
3610–3613 Labrador.
3650–3654 Saint Pierre and Miquelon Islands.
3690 United States and possessions (single projection).
3691 Possessions (Collectively).
Insular possessions; also comprehensive maps including Alaska and the Canal Zone.
Individual possessions are classified according to location, e. g. G 9415, Guam.
3692 By subject. Table II.[2]
3700–3702 United States.
3705–3706 Eastern United States, 1970 and later.
3710–3711 Northeastern States.
Roughly the area east of the Mississippi River and north of the Ohio and Potomac Rivers. "The North."
(3715) Northeastern Atlantic States.
New England and the Middle Atlantic States.

[1] For subdivisions, *see* Tables, p. 173–183.
[2] For Table II, *see* p. 176–183.

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APPENDICE VI: CANADA

630 000 CANADA

- 630 010 Nord
- 630 020 Sud
- 630 030 Centre
- 630 040 Est
- 630 050 Ouest
- 630 060 Les Maritimes
- 630 080 Les Prairies

631 000 ARCTIQUE CANADIEN

- 631 110 Mer de Beaufort
  - 631 111 Baie de Mackenzie
  - 631 112 Baie de Liverpool
  - 631 115 Golfe d'Amundsen
  - 631 116 Détroit du Prince de Galles
  - 631 117 Baie du Prince Albert
- 631 120 Détroit d'Amundsen
  - 631 121 Baie du Couronnement
  - 631 123 Détroit de Dease
  - 631 125 Baie de La Reine Maud
  - 631 127 Baie de Chantrey
- 631 130 Golfe de MacClintock
- 631 140 Détroit de Parry
  - 631 141 Détroit de MacClure
  - 631 143 Détroit de Melville
  - 631 145 Baie de Hadley
  - 631 147 Détroit de Barrow
  - 631 148 Détroit de Lancaster
- 631 150 Golfe de Booth
  - 631 151 Détroit du Prince Régent
  - 631 155 Baie du Comité

(à suivre)

630 000 CANADA

631 000 ARCTIQUE CANADIEN (suite)
631 161 Détroit de Belcher
631 164 Détroit de Sverdrup
631 167 Détroit de Nansen
631 170 Mer de Baffin
631 173 Détroit de Jones
631 175 Détroit d'Ellesmere
631 177 Baie de Kane
631 181 Golfe de Foxe
631 184 Détroit de Foxé
631 187 Détroit d'Hudson
631 190 Mer d'Hudson
631 191 Baie de James
631 195 Détroit de Roe
631 400 YUKON
631 700 TERRITOIRES DU NORD-OUEST
631 710 District de Mackenzie
631 740 District de Keewatin
631 770 District de Franklin
632 000 PROVINCES ATLANTIQUES
632 100 TERRE-NEUVE
632 190 Labrador
632 300 ILE-DU-PRINCE-EDOUARD
632 500 NOUVELLE-ECOSSE
632 700 NOUVEAU-BRUNSWICK
633 000 QUEBEC -- voir détails, appendice VII
634 000 ONTARIO
635 000 MANITOBA
636 000 SASKATCHEWAN
637 000 ALBERTA
638 000 COLOMBIE-BRITANNIQUE

APPENDICE VII: QUEBEC*

633 000 QUEBEC

- 633 100 Bas-Saint-Laurent-Gaspésie
  - 633 110 Gaspé
  - 633 130 Sainte-Anne-des-Monts
  - 633 140 Bonaventure
  - 633 170 Bas-Saint-Laurent
- 633 200 Saguenay-Lac-Saint-Jean
  - 633 210 Chicoutimi
  - 633 240 Roberval
- 633 300 Québec
  - 633 310 Rivière-du-Loup
  - 633 330 Québec
  - 633 350 Chaudière
- 633 400 Trois-Rivières
  - 633 410 Bois-Francs
  - 633 430 Mauricie
- 633 500 Cantons-de-l'Est
- 633 600 Montréal
  - 633 610 Granby
  - 633 620 Saint-Jean
  - 633 630 Beauharnois
  - 633 640 Saint-Hyacinthe
  - 633 660 Montréal-métropolitain
  - 633 670 Richelieu
  - 633 680 Joliette
  - 633 690 Terrebonne

(à suivre)

* Divisions établies d'après la carte: "Province de Québec. Régions et sous-régions administratives". Québec, Ministère de l'industrie et du commerce, Division du dessin, 1967.

Both schedules are equally suitable to the classification of Canadian maps and it can be extrapolated that both are sufficient to meet the needs of each library. (In the practical application most classification schemes will create difficulties in some cases but this is because difficulties are likely to be encountered when attempting to superimpose an ordered structure on diverse and sometimes elusive "intellectual production".)

The LC classification is somewhat more structured in that standard subdivisions are provided--general (-0,-5), subject (-1, -6), region (-2,-7), major political units (-3,-8), cities and towns (-4,-9). In the CARTESS classification no such standard subdivisions exist, except for the division of oceans and continents into north (--0 010), north-west (--0 014), etc. This feature makes the LC classification somewhat more self-generating but also less flexible.

The LC classification leaves unfortunately little room for expansion. In certain areas the CARTESS classification has no room for expansion but in general, has much more space available. This condition, however, presents relatively few problems in an area such as Canada. The classification is detailed enough to satisfy the needs of the collection at Guelph. (Only some rearrangement, i.e., putting Newfoundland with the Maritime Provinces, might be desirable.) By the same token, the CARTESS classification is equally adequate.

On the other hand, in areas of comparatively great change, LC is certainly out-dated and requires much reworking, i.e., the Congos. This might involve space difficulties. The CARTESS classification, although more up-to-date at present, may well run into similar difficulties.

In any case, where the LC classification is concerned, this should be of concern to the extent of making suggestions for changes to LC. Under no circumstances is it justified that an institution make random changes here or there in the classification since the resulting departures from the schedule would create more difficulties than might be solved. Acceptance of an officially

controlled schedule, even at the risk of some disadvantages, is far preferable and imperative in the case of inter-library co-operation.

Potential for the application of either classification depends much on the points discussed above. CARTESS departs completely from established classification schemes and, although, it may well serve internal needs quite adequately, it stands alone at this time. Utilization of LC MARC (Maps) tapes would require some sort of interface. On the other hand, this classification, in conjunction with the format, provides the possibility of indexing by area and thus more access points by area, rather than LC which (as used in the Guelph system) provides only one access point by area (excluding main entry area name in the Guelph format).

A further benefit of the LC schedule is the incorporation of the classification into the call number of a map which provides for a structured physical arrangement of the collection if this call number is used. It stands to reason that provision of such a call number is desirable.

As far as subject classification is concerned, both classifications are in practice more of an indexing technique (refer to 1(ii) Format). Whether 5 terms is better than 4, or vice versa, is debatable. It is by far more important that this technique exists in both systems.

This indexing, however, is based on subject codes which stem from the classification. In the case of CARTESS, 3 major subject categories exist and within each, a hierarchical break-down follows, from general to specific. In the Guelph subject classification, 17 major subject categories exist and within each a hierarchical break-down also follows, from general to specific. (For both cases refer to the sample outlines at 1(iii) 10-12.)

Similar levels in the hierarchy of each classification exist but the compatibility in detail of subject headings provided varies from on section to another. The reason for this is partly that

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204 000 TRANSPORTS ET COMMUNICATIONS

214 000 Infrastructure, réseaux; coûts
224 000 Technique
234 000 Production, chiffre d'affaires
244 000 Consommation, clientèle, trafic
254 000 Circulation, zone d'influence
264 000 Capitalisation, investissement
274 000 Effectif humain
284 000 Centres de recherche
294 000 Isochrones

204 100 Transports
204 110 Aériens
204 120 Routiers
204 130 Ferroviaires
204 140 Fluviaux et maritimes
204 150 Par adduction
204 154 Oléoducs, gazoducs
204 160 Par câble (téléphériques...)
204 164 Lignes de transmission électrique

204 101 Passagers
204 102 Marchandises
204 103 Mixtes
204 104 Energétiques
204 105 Urbains
204 106 Scolaires

(à suivre)

204 500 Communications
- 204 510 Presse
- 204 520 Radio et télévision
  - 204 521 Radio
  - 204 525 Télévision
- 204 530 Poste, télégraphe et téléphone
  - 204 531 Poste
  - 204 534 Télégraphe
  - 204 537 Téléphone

THE LIBRARY - UNIVERSITY OF GUELPH

M MANUFACTURING AND PROCESSING
M1 INDUSTRY
M2 MINERAL INDUSTRIES
M6 TEXTILE INDUSTRY AND FABRICS
M7 HIDES AND SKINS
M8 FOOD INDUSTRY AND TRADE
M9 FACTORIES

N TECHNOLOGY. ENGINEERING. PUBLIC WORKS
N2 HYDRAULIC ENGINEERING
N23 DAMS
N3 POWER RESOURCES
N31 POWER-PLANTS
N314 ELECTRIC POWER
N315 ELECTRIC POWER PRODUCTION
N316 WATER-POWER, ELECTRIC PLANTS
N33 WATER-POWER
N4 ELECTRIC UTILITIES
N6 WATER-SUPPLY
N8 SANITATION
N83 SEWERAGE

P TRANSPORTATION AND COMMUNICATION
P1 TRANSPORTATION
P2 ROADS
P25 TRAILS
P3 RAILROADS
P33 SUBWAYS
P4 PIPE-LINES
P5 SHIPPING
P512 NAUTICAL CHARTS
P515 WATERWAYS
P55 HARBORS
P57 SHIPWRECKS
P59 AERONAUTICS
P612 AERONAUTICAL CHARTS
P64 AIRPORTS
P643 AIRWAYS
P663 AIR TRAVEL
P9 TELECOMMUNICATION
P95 RADIO BROADCASTING
P96 TELEVISION

Q COMMERCE AND TRADE. FINANCE.
Q1 COMMERCE
Q12 TRADE ROUTES
Q35 RETAIL TRADE
Q42 MARKET SURVEYS
Q85 BANKS AND BANKING

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R MILITARY AND NAVAL GEOGRAPHY
R1 MAPS, MILITARY

subject headings are added to the List of Subjects in the Guelph system as needed. This makes the Guelph subject classification impractical for wider application, unless a control were established to oversee the addition of new subject headings; or, the List of Subjects were to be expanded to the same level of detail in all sections whether these subject headings are used or not (but they would need to be available).

On the other hand, a distinct advantage of the Guelph system is the incorporation of the subject code into the call number. As in the case of area, it provides a logical (dependent upon the structure of the subject classification) physical arrangement of maps in the collection by subject within area if this call number is used.

In both area and subject classification neither classification is suitable to a bilingual situation. Ideally, a French and English table of areas and a French and English table of subjects, each based on a common code for area and a common code for subject, might be utilized if it were considered advantageous that area and subject classification is to be included in the call number, or other fields in the format to provide indexing and therefore access from either language.

If such classification is not considered desirable, main entry area name, based on area names in official gazetteers (which are not as plentiful in French) and natural language subject indexing in both French and English are the other alternative. This is not nearly as attractive from a practical point of view. It would require 2 records for each entry--one in French and one in English--to provide access in both French and English. Such an approach would also make the production of such structured items as book catalogues much more involved and costly.

Reference tables

Both systems utilize reference tables to save format space and cataloguing/coding time. Area, subject, reproduction code/form, language, and projection tables are common to both systems. CARTESS also uses a table of journal acronyms and the Guelph system a table of locations.

Reproduction code/form and language tables are quite compatible in their contents but different codes are used. The language codes used in the Guelph system are the same as those used in the LC MARC (Maps). The projection table for CARTESS could not be examined at the time of writing this report but it is very comprehensive and represents the only bilingual aspect presently found in either system. Area and subject tables necessarily differ because of the different classification schemes employed. A table of journal acronyms, as it exists in CARTESS, was not devised for the Guelph system because of the relative infrequency of need.

For a bilingual system, the same considerations apply as outlined in 1(iii) Classification. French and English terms for all tables, each table based on a common code for English and French, should then ideally be utilized.

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Listings, entry and access

Both systems produce the same basic listings--area and subject. The Guelph system produces 2 types of area listings (refer to I.2 (v) Listings and entry) plus a shelf list; the capability exists for printing listings by scale, date, etc. but this is not done at this time. As far as a regional union catalogue of maps in hard copy is concerned, preferences of individual map collections would have to be taken into account in deciding which listings and what type of physical layout of an entry are most suitable for all concerned. Both layouts give a prominent place to area, subject, date of information and scale. The Guelph system offers more variety for consideration here.

A substantial benefit of CARTESS is its capability to produce catalogue cards. A system such as Guelph's, already operating with book catalogues, might not consider this useful for internal application; another library operation, already using a card catalogue, might find the availability of catalogue cards highly desirable. To establish what products a regional system is to supply, such pre-conditions in different situations should be taken into account.

From this brief discussion, 2 separate levels of products become apparent--products at the regional level (i.e., regional union catalogue), and the internal, local level (i.e., book catalogue or card file of local holdings). The latter would have to be the responsibility of individual institutions but the system would also have to provide the possibility of making the information accessible so that individual institutions could create their own local products (i.e., making possible the transfer of entries from a regional master file to a local master file). Catalogue cards, however, are more practically produced at the regional level.

Differences in access for the user exist between the two systems. CARTESS has a maximum of 5 different access points for area and a maximum of 5 different access points for subject. As

stated earlier, this access is the result of indexing, rather than classification, and the listings therefore are better termed "indexes". The subject listing in the Guelph system provides similar access; a map may be coded for up to 4 subjects. In the area listings, only one access point exists for each listing. From the point of view of access by area, the CARTESS system may therefore be considered superior.

Processing

Both systems utilize coding sheets, and from there the data is transferred to magnetic tape. The Guelph system is more efficient in this transfer due to the use of OCR. This requires the handling of data only once by a typist, rather than twice, as for CARTESS where data is handled once by a typist and once more by a key/tape operator.

The use of OCR, therefore, eliminates one stage in the process of data input. This lowers cost and reduces the chance of error.

After the data is on tape, processing is simi.ar for both systems, involving master file up-dates, reformatting, and the printing of catalogues.

Cost

The comparison of costs of systems can be misleading. Differences in processing as a result of differences in products or system capabilities have to be taken into account.

It is unfortunate, however, that no pure systems cost per entry is available for CARTESS. Considering the differences between the systems, one could at least pass some judgement on how much and what can be accomplished with each system for "x" dollars and cents.

With the information available, therefore, it is difficult to compare CARTESS and the Guelph system on a cost basis. It appears that the systems cost per entry may be less for the Guelph system.

Comparison of formats -- CARTESS, Guelph, Canadian MARC, LC MARC (Maps)

This comparison has been done to establish how the two local system formats (CARTESS and Guelph) relate to the Canadian MARC format* and also the LC MARC (Maps)** and to determine how compatible these formats are with Canadian MARC.

To keep this comparison comprehensible, only field designator (tag), type of field, brief description (name) of field, and status will be presented in a tabular form. This should present a relatively clear picture and eliminate the need for elaborate, verbal discussion in this report.

The first table includes all fields regardless of tag or type.

The second table is an expansion of tag 008--fixed fields (and repeats some fields for the CARTESS and the Guelph format already found in Table 1).

The comparison is based on the Canadian MARC format since this format is of immediate concern in the context of this report.

The following terms are used to describe fields:

Type -- V - variable
F - fixed
F/V - fixed variable

Status -- "used" - field in use
"res." - reserved for special formatting requirements
"not used" - field reserved but not used in the communications format (Canadian MARC, LC MARC (Maps))

*Canada. The National Library of Canada. Canadian MARC: a report of the activities of the MARC Task Group resulting in a recommended Canadian MARC format for monographs and a Canadian MARC format for serials. Ottawa, Ont., 1972.

As advised by the Canadian MARC Office on April 11, 1974, this is the latest edition of the Canadian MARC format. A few minor revisions are being considered as a result of recent international developments but these will not result in a new edition as such. Update pages will be made available to all owners of the Canadian MARC format whenever any changes are made.

**U.S. Library of Congress. Geography and Map Division. Data preparation manual for the conversion of map cataloging records to machine-readable form. Washington, D. C., 1971.

---. Information Systems Office. Maps; a MARC format. Washington, D.C., 1970.

TABLE 1. Comparison of all fields

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Control number	001	V	used	001	V	used	-	F	I.D. no. (used)			(call no. has this function)
Fixed fields	008	F	used	008	F	used		F	used		F	used
LC Card number	010	V	used	010	V	used						
Linking LC card number	011	V	not used									
National Bibliography number	015	V	used	015	V	used						
Linking N. B. number	016	V	not used									
Copyright registration number	017	V	not used	017	V	used						
Correction message	018	V	not used									
International standard book number	020	V	used	020	V	used						
Standard serial code	022	V	res.									

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Overseas acquisition number				025	V	used						
CODEN for serial entry	030	V	res.									
Local system number	035	V	not used									
Linking local system number	036	V	not used									
Cataloguing source	040	V	used									
Languages	041	V	used	041	V	used	81	F	used	-	F	used
Search code	042	V	res.									
Geographic area code	043	V	used									
Chronological coverage code	045	V	used									
International record source	046	V	used									
LC Call number	050	V	used	050	V	used						

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Copy statement	051	V	used									
Map classffication code				052	V	used				-	F	used
Canadian classific. schedule	055	V	used									
National Library of Canada copy statement	056	V	used									
NLM Call number	060	V	not used									
NAL Call number	070	V	not used									
UDC Number	080	V	not used									
Dewey DC number	082	V	used									
Dewey DC classific. feature	083	V	used									
Documents classific. number	086	V	used									

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Other class numbers	087						01	F	Area (used)			
							11	F	Subject (used)			
Local class numbers	090	V	not used				81	F/V	used	-	F	Master call number (used)
Linking call number	091	V	not used							-	F	Printing call number (used)
Personal name	100	V	used	100	V	used	21-24	F/V	used	61	F/V	used
Corporate name	110	V	used	110	V	used			(incl. under 21-24)	62	F/V	used
Conference or meeting	111	V	used	111	V	used			(incl. under 21-24)			(incl. under 62)
Uniform title--main entry	130	V	used	130	V	used						

II.2.6

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Romanized title	241	V	used	241	V	used			(incl. under 31, 32)			(incl. under 20)
Collective title	243	V	used									
Title statement	245	V	used	245	V	used	31,32	F/V	used	20	F/V	used
Varying forms of title	246	V										
Former titles	247	V	res.									
Edition statement	250	V	used	250	V	used	91	F/V	used	25	F/V	used
Imprint	260	V	used	260	V	used	41,42	F/V	used	30	F/V	used
Collation	300	V	used	300	V	used				40	F/V	used
Frequency	310	V	res.									
Current frequency control	320	V	res.									
Former frequency control	321	V	res.									

II.2.7

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Publication pattern	330	V	res.									
Former publication pattern	331	V	res.									
Price	350	V	used	350	V	used						
Dates and volume designation	362	V	res.									
Series note--personal name/title traced	400	V	used	400	V	used						
Series note--corporate author/title traced	410	V	used	410	V	used						
Series note--conference name/title traced	411	V	used	411	V	used						
Series title--traced	440	V	used	440	V	used						
Series untraced or traced differently	490	V	used	490	V	used	91	F/V	used	50	F/V	used
General note	500	V	used	500	V	used	61,62	F/V	used	63-69	F/V	used

I.2.8

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Bound with note	501	V	used									
Dissertation note	502	V	used									
Bibliography history history	503	V	res.									
Bibliography note	504	V	used	504	V	used						(incl. under 63-69)
Contents note	505	V	used	505	V	used			(incl. under 61,62)			(incl. under 63-69)
Limited use note	506	V	res.									
Scale note	507	V	res.	507	V	used	71	F	used	-	F	used
Credits note	508	V	res.									
Indexing and abstracting coverage	510	V	res.									
Cast note	511	V	res.									

II.2.9

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Explanation of dates and volume	515	V	res.									
Abstract/annotation	520	V	res.									
Supplement note	525	V	res.									(incl. under 63-69)
Additional physical forms	530	V	res.									
Repository (manuscripts)	535	V	res.									
Language note	546	V	res.									
Former title note	547	V	res.									
Issuing body note	550	V	res.									
Cumulative indexes	555	V	res.									
Editor note	570	V	res.									
Linking entry note	580	V	res.									(incl. under 63-69)

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Subject added entry --personal name	600	V	used	600	V	used						
Subject added entry --corporate name	610	V	used	610	V	used						
Subject added entry --conference or meeting	611	V	used	611	V	used						
Subject added entry --uniform title	630	V	used	630	V	used						
Subject--topical	650	V	used	650	V	used				10	F/V	used
Subject--geographical	651	V	used	651	V	used						
PRECIS description	690	V	used									
Reference index nos.	692	V	used									
Personal name--added entry	700	V	used	700	V	used						
Corporate name--a. e.	710	V	used	710	V	used						

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Conference or meeting --added entry	711	V	used	711	V	used						
Uniform title--a.e.	730	V	used	730	V	used						
Title traced different.	740	V	used	740	V	used						
Linking main series	760	V	res.									(incl. under 63-69)
Linking subseries	762	V	res.									(incl. under 63-69)
Linking original entry	765	V	res.									
Linking translation	767	V	res.									
Linking supplement	770	V	res.									
Linking parent record	772	V	res.									(incl. under 63-69)
Other editions	775	V	res.									(incl. under 63-69)

II.2.12

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Additional physical forms	776	V	res.									
Issued with	777	V	res.				51,52	F/V	Source (used)			(incl. under 63-69)
Preceding entry	780	V	res.									
Succeeding title	785	V	res.									
Series added entry--personal name/title	800	V	used	800	V	used						
Series a.e.--corporate name/title	810	V	used	810	V	used						
Series a.e.--conference or meeting/title	811	V	used	811	V	used						
Series a.e.--title	840	V	used	840	V	used						
Equivalence/reference --personal name	900	V	used	900	V	Local use (not used)						
Equivalence/reference --corporate name	910	V	used									

II.2.13

TABLE 1. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status	Tag	Type	Status
Equivalence/reference conference name	911	V	used									
Equivalence--uniform title main entry	930	V	used									
Equivalence--uniform title	940	V	used									
Equivalence--title	945	V	used									
Equivalence--bibliogr. notes	950	V	used									
Equivalence--subject heading	960	V	used	999								
Area--main entry										10	F/V	used

II.2.14

TABLE 2. Fixed fields

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Pos.	Status	Tag	Pos.	Status	Tag	Pos.	Status	Tag	Pos.	Status
Date entered on file	008	0-5	used	008	0-5	used	81	43-48	used			
Type of publication data code	008	6	used									
Publication date, key				008	6	used						
Date 1	008	7-10	used	008	7-10	used	41	17-21	used	30	var.	used (in var. fd. only)
Date 2	008	11-14	used	008	11-14	used						
Country of publication code	008	15-17	used	008	15-17	used						
Illustration codes	008	18-21										
Relief codes				008	18-21	used	81	29-35	used			(incl. under 63-69)
Intellectual level code	008	22	used									
Form of reproduction code	008	23	used	008	25	used	81	17-18	used	-	68-71	used

II.2.15

TABLE 2. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Pos.	Status	Tag	Pos.	Status	Tag	Pos.	Status	Tag	Pos.	Status
Form of contents code	008	24-27	used									
Base map elements				008	22-24	used	81	36	Prime meridian (used)			(Prime mer. incl. under 63-69)
								39-42	Projection (used)	-	61-62	Projection (used)
Publisher code				008	26-30	used						
Government publication indicator	008	28	used									
Conference publication indicator	008	29	used									
Festschrift indicator	008	30	used									
Index indicator	008	31	used	008	31	used						
Main entry in body of entry indicator	008	32	used									
Citation indicator				008	32	used						

TABLE 2. (cont'd)

DATA IN FIELD	CAN. MARC			LC MARC (MAPS)			CARTESS			GUELPH		
	Tag	Pos.	Status	Tag	Pos.	Status	Tag	Pos.	Status	Tag	Pos.	Status
Literary text and type of publication indicator	008	33	used									
Record group				008	33-34	used						
Biography code	008	34	used									
Language code	008	35-37	used	008	35-37	used	81	20-28	used	-	63-65	used
Modified record indicator	008	38	used	008	38	used						
Cataloguing source code	008	39	used	008	39	used						
Subject category code	008	40-42	used									

The following fixed fields are unique to CARTESS and the Guelph format (i.e., these fields may appear in the Canadian MARC format and LC MARC (Maps) as variable fields but do not have a fixed field equivalent):

		Tag	Char. pos.
CARTESS:	I.D. number	-	1-13
	Entry codes	-	15-16
	Area	01	17-46
	Subject	11	17-46
	Date of information 1	71	27-31
	Date of information 2	71	32-36
	No. of copies	71	41-42
	Size	71	43-48
	Geographical coordinates	71	49-78
	Type of document	71	79-80
	No. of insets	81	37-38
Guelph:	Master call number	-	1-21
	Printing call number	-	22-50
	Non-print indicator	-	51
	Location		66-67
	Other subject 1	-	72-76
	Other subject 2	-	77-81
	Other subject 3	-	82-86
	Size	-	87-93
	Cross-reference indicator	-	94

The Guelph format also includes one extra variable field: 80 Holdings.

Summary: 1. Neither CARTESS, nor the Guelph format utilize variable fields as do Canadian MARC and LC MARC (Maps). Those fields termed "variable" at I.1(ii) and I.2(ii) are fixed variable fields; i.e., these fields may contain variable length data but have a maximum number of character positions available.

2. CARTESS differs further in that it utilizes several tagged fixed fields with fixed sub-fields identified only by character positions per sub-field. (All these tagged fixed fields really correspond to tag 008 in Canadian MARC and LC MARC (Maps).)

3. The differences outlined in 1. and 2. above create incompatibility. The transfer of data for a particular field from either Canadian MARC or LC MARC (Maps) to either format (CARTESS, Guelph) is limited by the amount of information either format is capable of absorbing. The Guelph format, due to its larger field size (fixed variable) is somewhat more compatible here.

		Can MARC	LC MARC	CARTESS	Guelph
I.e.,	General note	variable	variable	128 char. pos.	1,785 char. pos.

Also, a number of fields are common to all formats but in some of these cases, the form in which the data is stored is not compatible; i.e., Canadian MARC or LC MARC (Maps) may store a data element in a variable length field, spelling out the information in full; CARTESS or the Guelph format may store this data element in coded form in a fixed field.

		Can. MARC	LC MARC	CARTESS	Guelph
I.e.,	Subject--topical	variable	variable	5 fixed fields (info in code)	1 fixed variable fd. 3 fixed fds. (info. in code)

4. From the table of comparison, it is obvious that CARTESS and the Guelph format do not include many of the data

elements provided for in the Canadian MARC and LC MARC (Maps). LC MARC (Maps) also does not include some of the data elements in the Canadian MARC format. The reason for this is that a number of the elements in the Canadian MARC format are not applicable to maps. A further reason is that both CARTESS and the Guelph format are much briefer formats, primarily designed for local use. They are capable of dealing only with a less detailed form of cataloguing.

5. The Guelph format and CARTESS use area as main entry, a concept very much established in the map library world. LC MARC (Maps) retains author main entry for maps, a carry-over from book cataloguing and spelled out in the Anglo-American Cataloging Rules.

6. The CARTESS format provides for geographical coordinates as a data element. This useful feature is not provided for in Canadian MARC and neither in LC MARC (Maps).

7. Due to the fact that both CARTESS and the Guelph format are local formats, each includes fields for data elements applicable to local use; i.e., entry codes, location, holdings.

8. Within the limitations discussed in 3. above, it is possible to transfer data from one format (i.e., LC MARC (Maps)) to another (i.e., the Guelph format). To do this, however, a fairly elaborate interface due to the incompatibility of format structure (and, to some degree, field content) would be required. It may be concluded that CARTESS and the Guelph format are structurally not compatible with Canadian MARC and LC MARC (Maps).

As far as field content is concerned, a very high degree of compatibility exists between CARTESS, the Guelph format and LC MARC (Maps) and a reasonable degree with Canadian MARC.

III

RECOMMENDATIONS

Recommendations

Many conclusions were drawn in the preceding analysis of the two systems and the comparison of formats. These conclusions serve as the basis for the following recommendations:

1. A regional system should be created for Quebec map collections and another regional system for Ontario map collections. Both should be under the auspices of the OULCS/Map Project to ensure compatibility for the purposes of data communication and to ensure the possibility of a common data base and system at a later date.

The prime reason for this recommendation is that it should be more efficient and less difficult to deal with only one language in a system. The problems associated with the implementation of a bilingual system would very likely retard the progress of the project considerably, and it should be more practical at this time to ensure the communicability of information between two such regional systems.

The following recommendations then apply equally to both suggested regional systems.

2. The objectives of the OULCS/Map Project should be re-evaluated in the light of the above recommendation.

3. The regional system should include as one of its aspects "shared cataloguing"--input of a new record into the regional data base by a participating map collection if this record is new to that data base, and the making available of that record to all other participating map collections who wish to add it to their local file.

This will require (a) a decision on the level of cataloguing to be made available in the regional system; and, (b) the development of a cataloguing code for maps to be used by all participating map collections.

For (a), it is recommended that the level of cataloguing be kept at a similar level of detail as provided by the Guelph format. (Both CARTESS and the Guelph system were designed to serve the needs of users in a university environment and in both cases requirements are met adequately.)

For (b), it is recommended that the code be developed for the level of cataloguing suggested in (a) and that it adhere as closely as possible to the Anglo-American Cataloging Rules (most recent edition) as used to determine content in the Canadian MARC format.

It is also recommended here that area main entry be used for maps.

4. (a) A format should be developed for use by both suggested regional systems.

This should ensure compatibility between the French and English data bases, eliminate the need for an interface, and facilitate a merging of both data bases at a later date (if this should prove to be desirable).

(b) In line with recommendation 3., this format should be briefer but compatible with Canadian MARC in its basic structure and content designators.

This should eliminate the need for an interface between the regional format and Canadian MARC and facilitate an efficient transfer of information between the two formats. It also has the added advantage of compatibility with LC MARC (Maps).

5. A classification for area and subject should be chosen and this classification should appear for every record.

This is necessary because first level access to records is by area or subject. (This is the case in both CARTESS and the Guelph system.) It can be presumed that access to a regional data base will be of the same type and this requires standardization of this data element because of possible input of records from many different sources.

Furthermore, it appears desirable to select a classification

scheme for maps since it would provide some impetus to move away from the presently rather diversified situation of map classification in Canada. (This is also reasonably practical since a number of map collections in Ontario have their maps only partly catalogued--i.e., the University of Ottawa, the University of Waterloo, McMaster University.)

It is recommended that the LC G-Schedule, the portion pertaining to the area classification of maps, be considered for adoption. (In line with this, it is also recommended that any inadequacies of the schedule, as they become apparent, be discussed by participants of the OULCS/Map Project, and that alterations deemed desirable be suggested to LC by the Map Project. This is to avoid as much as possible any local alterations of the schedule.)

It is further recommended that the subject classification of maps as used in the Guelph system be considered for adoption.

6. The indexing of area and subject by code as used in CARTESS should be considered for adoption.

Indexing of this nature would add much to the possibilities of retrieval of maps. (This is suggested in addition to the more conventional approach outlined in 5..)

7. A regional data bank, using the entry format suggested in 4. should be created to facilitate:

(a) shared cataloguing

(b) the development of a regional union catalogue (showing location and holdings)

(c) the production of local book catalogues--area, subject, etc.

(d) the transfer of information between regional data banks and a national data bank; also the utilization of other tape services specifically related to maps (i.e., LC MARC (Maps))

(e) improved, local control of collection development (a map collection should be able to improve acquisitions decision

making)

(f) inter-university borrowing of maps; the improved access for the user to more maps in more places, faster than at the present time (inter-library loan of maps is virtually non-existent at the moment)

(g) the provision of statistics at the local level which could aid in map collection management and planning.

8. Development stages should be handled by task forces, and, where necessary, include participants from both the Quebec and Ontario regional projects (i.e., format development).